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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/054,706

01/24/2002

Farrokh Alemi

GMU-22U

5413

28598 7590 12/16/2008

GEORGE MASON UNIVERSITY  
OFFICE OF TECHNOLOGY TRANSFER, MSN 5G5  
4400 UNIVERSITY DRIVE  
FAIRFAX, VA 22030

EXAMINER

GOTTSCHALK, MARTIN A

ART UNIT

PAPER NUMBER

3696

MAIL DATE

DELIVERY MODE

12/16/2008

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.



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## **DETAILED ACTION**

### ***Notice to Applicant***

1. Claims 1-8 are pending. All claims are amended. Claims 1 and 7 are substantively amended, while claims 2-6 and 8 are amended to correct informalities.

### ***Continued Examination Under 37 CFR 1.114***

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/07/2008 has been entered.

### ***Claim Objections***

3. Claim 1, step c is objected to because it refers to "each of said patient group" which is grammatically incorrect. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Art Unit: 3696

5. Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. Claims 1 and 7 recite

“wherein each of said episode is a group of diagnoses on the same patient that describes the course of a given illness but not healthcare provided services.”

The Examiner notes that a diagnosis is a type of “healthcare provided service,” thus the meaning of these claims are unclear. Claims 2-5 and 8 depend from these claims and are thus rejected as well.

7. Claim 6 recites a “probability calculation” that produces a probability based on a numerator comprising a “similarity value” divided by a denominator comprising a “time between diagnosis value plus one. It is not clear in what sense this calculation could produce a probability in the normal sense of the term, since a probability is usually is a fractional amount of a total which is unit-less. It is unclear how the recited features would produce such a result.

### ***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 3696

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Spiro (US Pat# 5,819,228, hereinafter Spiro) in view of Lockwood (US Pat# 5,706,441, hereinafter Lockwood).

**As per claims 1, 7, and 8**, Spiro discloses an episode classification system including:

a. a multitude of diagnosis records, each of said diagnosis records comprising:

i. said diagnosis information (Spiro: col 4, lns 50-65);

ii. time of said diagnosis information (Spiro: col 6, ln 66 to col 7, ln 3);

and

iii. patient information (Spiro: col 6, ln 66 to col 7, ln 3);

b. a patient grouper for generating at least one patient group by grouping patient records having similar said patient information (Spiro: col 2, lns 63-67; col 5, lns 39-47; col 7, lns 49-56; col 9, lns 12-22);

c. a diagnosis grouper for generating at least one diagnosis group by grouping diagnosis records with similar diagnosis information from each of said patient group (Spiro: col 5, lns 10-21);

d. an episode analyzer including:

i. a probability analyzer for performing probability calculations, each of said probability calculations capable of generating a probability value using at least two of said multitude of diagnosis records as input entries, said probability value representing the probability that said input entries belong to a single episode (Spiro: col 6, lns 5-21, i.e. the probability is 1 or zero; col 9, lns 36-66) wherein each of said episode is a group of diagnoses on the same patient that describes the course of a given illness

Art Unit: 3696

but not healthcare provided services (Spiro: col 2, Ins 47-55; col 3, Ins 23-30).

ii. an episode grouper for grouping said diagnosis records determined to belong to said single episode (Spiro: col 4, Ins 50-64; col 5, Ins 60-65; Fig 6).

Spiro fails to disclose item d-iii, however this feature is disclosed by Lockwood, who teaches

iii. a severity analyzer for performing episode severity calculations, each of said episode severity calculations capable of generating an episode severity value (Lockwood: col 4, Ins 46-61; col 10, Ins 40-61, note the contrasting approach of the “alternative embodiment” where complexity [reads on severity] is determined from diagnosis data).

It would have been obvious at the time of the invention to one of ordinary skill in the art to incorporate the teachings of Lockwood into the system taught by Spiro with the motivation of accurately differentiating levels of case complexity handled by different categories of healthcare providers (Lockwood: col 3, Ins 43-53).

Art Unit: 3696

**As per claims 2-4**, Spiro discloses the episode classification system according to claim 1 wherein at least one of said diagnosis records is

(claim 2) an anchor diagnosis record (Spiro: col 6, lns 2-8);

(claim 3) a trigger diagnosis record (Spiro: col 6, lns 2-8);

(claim 4) stopping point diagnosis record (Spiro: col 6, lns 2-8).

**As per claim 5**, Spiro discloses the episode classification system according to claim 1 wherein said calculation:

a. operates on a pair of diagnosis records (Spiro: col 6, lns 9-14);

b. is a function of:

i. a similarity value, said similarity value representing the similarity between said pair of diagnostic records (Spiro: col 6, lns 9-16; col 9, lns 14-66);

and



ii. a time between diagnosis value, said time between diagnosis value representing the time between said pair of diagnostic records (Spiro: col 2, Ins 55-62).

**As per claim 6**, Spiro teaches the episode classification system according to claim 5 wherein said probability calculation includes

a probability numerator divided by a probability denominator said probability numerator set to said similarity value times a first constant and said probability denominator set to the quantity of a second constant times said time between diagnosis value plus one (Spiro: col 6, Ins 9-16; col 9, Ins 14-66).

### ***Response to Arguments***

11. Applicant has generally rehashed arguments presented before focusing on an asserted difference between the applied references and the claimed invention with respect to the prior art referring to “healthcare services” as opposed to diagnoses. The Examiner is not persuaded that such a distinction exists, particularly because it is considered that a diagnosis is in fact a type of health care service as stated in a previous office action. Nonetheless, prior art concerning episode analysis based essentially on diagnosis information has been applied. Applicant’s arguments are thus moot in view of these new grounds of rejection.

***Conclusion***

12. The cited but not applied prior art teach methods of analyzing severity of episodes of medical conditions.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARTIN A. GOTTSCHALK whose telephone number is (571)272-7030. The examiner can normally be reached on Mon - Fri 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Dixon can be reached on (571) 272-6803. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Martin A. Gottschalk/  
Examiner, Art Unit 3696

/Ella Colbert/  
Primary Examiner, Art Unit 3696